Jerry Zhu

347-481-1012 | jerry.zhu@stonybrook.edu | linkedin | github | personal

Education

Stony Brook University — Stony Brook, NY
Bachelor of Science, Computer Science — *August 2022 - May 2026*

- Coursework: Discrete Mathematics, Linear Algebra, Data Structures and Algorithms, Probability and Statistics
- Extracurriculars: Stony Brook Game Developers, Stony Brook Computing Society

Technical Skills

Languages: C++, C, C#, GLSL, Common Lisp, Scheme, Java, Python, Rust, JavaScript, TypeScript
Libraries & Technologies: OpenGL, Unity Game Engine, Godot Game Engine, WebGL, MonoGame, Emscripten
Developer Tools: Git, Mercurial, Visual Studio, GDB, Valgrind, RenderDoc, Bash, Trello, Linux

Projects

Soul Walker - Released on itch.io | *C#, Unity* — April 2023

- Completed turn-based first person dungeon crawler for Dungeon Crawler Jam 2023 with 3 levels
- Raycast based movement system allowing for slopes and verticality in level design
- Designed a custom 'body possession' mechanic to follow the given jam theme 'duality'
- Implemented a 3D ingame inventory system for items and equipment

CrankLang | *C++* — March 2023 - Present

- Implemented a statically typed procedural programming language with a handwritten recursive descent parser and compiler in **C++**
- Compiles programs from an abstract syntax tree into **C++** code
- Supports a foreign function interface system which can interact with C libraries, dynamic arrays and strong enums
- Example programs included for basic graphical games such as Pong

JRPG Game: Legends | *C, SDL2, Emscripten* — June 2022 - Present

- 2D multiplatform software rendered Tactics JRPG game engine in **C**, running on desktop with SDL2 and web through **Emscripten**
- Developed custom level editor, world map editor, and save formats with **backwards compatibility**
- Developed a parser for a lisp-based scripting language used for game events, cutscenes, and data
- Implemented a particle system, SNES Mode7 inspired world map, and BFS based pathfinding for entities
- Utilized a custom memory management scheme through arenas and pools removing allocations at runtime
- Implemented a **SIMD** optimized **multithreaded** renderer improving framerate by 200%

2D Game Framework | *C, OpenGL, SDL2, Emscripten* — July 2021 - October 2021

- Developed a minimum dependency cross-platform game framework in **C** using **SDL2** and **OpenGL** targeting desktop and web with **Emscripten**
- Utilizes a plugin system with dynamic link libraries (DLLs) and a custom build system to allow for statically linking the framework with game code
- Designed a **high performance sprite batcher with** compressed vertex information, screen-based culling, and custom shader support
- Designed a **glyph-cache** that allows rendering **arbitrary Unicode text** with high performance and low memory usage
- Implemented useful development features such as a **Quake style debug console** and **hot reloadable assets** which include textures and shaders

Volunteer Experience

Development Team Lead — February 2021 - September 2022
The Environment Project — *Queens, NY*

- Led the development of Recyclopedia, a custom wiki application with 4 team members
- Maintained and redesigned the organization **WordPress** website which reached 10K visitors
- Authored the event page for the Flushing Meadows Corona Park clean-up which resulted in 111 participants
- Managed collaboration through **GitHub**, **Trello**, and bi-weekly pair-programming meetings on **Zoom** and **VS-Code**